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Evaluation Committee

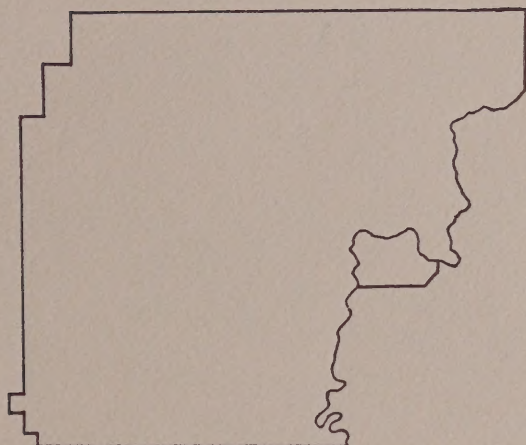
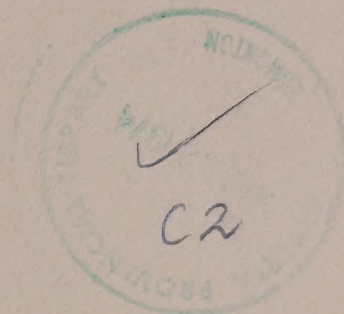
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Report of the Suffield Evaluation Committee Summarizing Its Operations During 1973



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REPORT OF THE

SUFFIELD EVALUATION COMMITTEE

SUMMARIZING ITS OPERATIONS

DURING 1973

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REPORT OF THE
SUFFIELD EVALUATION COMMITTEE
SUMMARIZING ITS OPERATIONS
DURING 1973

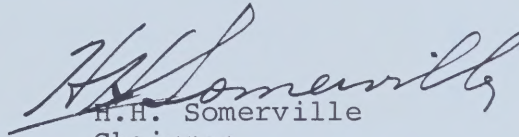
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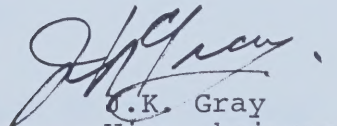
Honourable Bill Dickie, Q.C.,
Minister of Mines and Minerals,
Edmonton, Alberta.

Sir:

We have the honour to present, pursuant to Section 7
of the Suffield Evaluation Regulations, the report of the
Suffield Evaluation Committee summarizing its operations
during 1973.

Dated at the City of Edmonton, in the Province of
Alberta, this 22nd day of January, 1974.


H.H. Somerville
Chairman


J.K. Gray
Vice-chairman

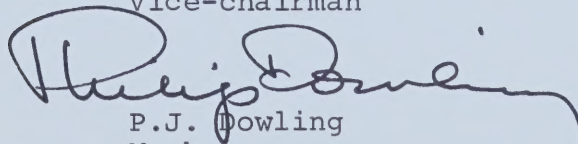

P.J. Dowling
Member

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DRAWING

1	Suffield Block
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INTRODUCTION

The Suffield Block, also known as the British Block, is an area of some 644,000 acres, lying generally to the west of the South Saskatchewan River and to the north of the City of Medicine Hat. (Drawing No. 1). The Block is used primarily as a military training area and a defence research experimental area. British armoured training units presently utilize some 65% of the Block for annual spring-through-fall training maneuvers.

The surface rights within the Block were acquired by Canada through expropriation proceedings in 1941 and are still owned by the Federal Government. The petroleum and natural gas rights in 95.47% of the Block are owned by the Crown in right of Alberta. The titles to the rights in 3.77% of the lands are held by the Hudson's Bay Company, while the remaining .76% are owned by others including the Federal Government.

Alberta Regulation 134/73, filed on May 23, 1973 established the Suffield Evaluation Committee. The purposes and objectives of the Committee are to arrange for and to complete the reserves evaluation drilling program consisting of 77 wells recommended in the Resource Evaluation Study of the Suffield Block dated December, 1972 and prepared for the Province of Alberta.

Last, Kloepper Ltd of Calgary was retained as the Committee's Consultant to assist in the conduct of the evaluation drilling program. This petroleum consulting firm had participated in the preparation and compilation of the Resource Evaluation Study.

Surface Access Agreement

In order to obtain access for drilling the evaluation wells it was necessary to make an arrangement with the Department of National Defence. A meeting was arranged by the Department of Federal and Intergovernmental Affairs with senior personnel of the Department of National Defence. Permission was obtained for locating and drilling 22 of the wells in the southerly portion and 5 wells in the northeasterly portion of the Block during the summer of 1973. No army operations were then planned for these areas. As most of the remaining 50 wells would be located in areas involved in training maneuvers of the British armoured units it was arranged that these wells would be drilled during the winter of 1973-74.

It was a condition of the arrangement that access would, wherever possible, follow existing roads and trails in the Block to ensure a minimum of surface disturbance. Furthermore, the locating of access roadways to the well sites would be determined in consultation with the Base Commander of the Canadian Forces Base at Suffield.

As an additional safeguard those employed by the Committee would be required to comply with army traffic and safety regulations while within the Block. The army made available to the Committee on an abandoned runway, space for a field office and for storage of casing and equipment.

In the further interests of safety it was agreed that the wellhead for each of the wells would be protected in a concrete cellar installed at a depth below the surface to permit a concrete lid to be placed over the cellar and covered with at least two feet of earth.

The Defence Research Establishment at Suffield operates a Range Patrol radio system in the Block. The Committee was pleased to accept its offer to install a radio unit in the field office and to provide a mobile unit for each drilling rig and also in each of the cars used by the Committee's supervisory field staff.

Hudson's Bay Minerals

When the evaluation drilling program was announced, the Hudson's Bay Oil and Gas Company Ltd indicated that it was anxious to contribute a proportionate share of the cost of proving up the gas reserves in the Block. The company explained that it had the right to drill the mineral tracts held by Hudson's Bay Company, which tracts represented some 3.77% of the

total acreage of the Block. It was agreed that three of the 77 evaluation wells would be drilled on Hudson's Bay tracts and that the Company would reimburse the Committee for expenditures incurred in drilling, completing and testing the three wells. Upon payment being made, the three well licences would be transferred to the Hudson's Bay Oil and Gas Company Limited.

Well Sites

When the locations for the wells were initially surveyed, the sites were carefully inspected on the ground and in those instances where interference with natural drainage might occur the site was moved to a more appropriate level location nearby. The names of the wells have been prefixed with the words 'Alberta Suffield' for easy identification of the evaluation wells from development wells drilled in the future.

Well Information

In view of the interest in the evaluation drilling program the Committee decided that none of the well data would be held confidential. The Energy Resources Conservation Board was so informed on July 11, 1973. As a consequence as well logs, surveys and test data are filed with the Board, they are then available to interested persons at the Board's office in Calgary.

OPERATIONS

With the consent of the Department of National Defence to drill some of the wells during the summer the Committee decided to conduct the reserves evaluation drilling program in two stages:

- Stage 1 - to consist of the drilling of 27 wells in the summer of 1973, and
- Stage 2 - to consist of the drilling of the remaining 50 wells during the winter of 1973-74.

Stage 1

This stage consisted of 22 wells drilled to test the Milk River and Medicine Hat zones and 5 wells drilled to test the Milk River, Medicine Hat and Second White Specks zones.

Competitive tenders were invited for major services and supplies for Stage 1. Awards were made on the basis of the lowest acceptable bid for each phase of the work. Those awarded contracts are listed in Table I.

Farries Engineering Ltd was retained to provide supervision for field drilling operations and Reimer Engineering Ltd was retained to supervise the completion of the wells. Core Laboratories - Canada Ltd was selected to provide the core analysis service and the gas analyses were awarded to Chemical and Geological Laboratories Ltd.

The drilling contract was awarded on the basis of a two rig program with the first rig spudding the first well of Stage 1 on July 9th, 1973. This rig drilled 19 Medicine Hat tests by September 3, 1973. The second rig commenced drilling on July 29th. It drilled five Second White Specks tests and three Medicine Hat tests by September 8, 1973.

Perforating and fracturing work on the wells commenced on July 25th and was completed on October 24, 1973. The shortage of carbon dioxide caused by the railway strike in August delayed the completion of this operation.

Twenty of the wells were dually completed to produce gas from the Milk River and Medicine Hat formations. Five were dually completed to produce from the Milk River and Second White Specks formations. Alberta Suffield 6-5-15-7 was completed as a single zone Milk River well to permit evaluation of fracturing effects on this zone. Alberta Suffield 6-35-17-9 was also completed as a Milk River gas producer. Both of these wells can be completed to produce gas from the Medicine Hat formation in the future when the need arises.

Access problems were minimal for the well sites in the southerly portion of the Block as they were in close proximity to graded roads and trails. Access to the four well sites in the northeasterly portion caused some problems due to the

sandy nature of the soil. Tracked vehicles were used to facilitate moving of the drilling rig and equipment.

No available ponds of water were found in the northeasterly area and as the South Saskatchewan River in that area is inaccessible due to the steep banks, a well was drilled to provide a supply of water for drilling and completing the gas wells. Utilizing information obtained from the Department of the Environment and from our Consultant in locating a suitable site, the water well was drilled in L.S. 6-5-19-4 W4 Mer. adjacent to a main access roadway. In addition to supplying water for four wells in the summer program, the water well was also available for several of the evaluation wells in the winter program.

Individual flow testing of the gas wells was commenced on September 6, 1973 and no significant problems were encountered. The final reports tabulating the test data are being prepared.

Table III contains information relating to the Stage 1 wells.

Stage 2

Appreciating that casing might be in short supply bids were invited on August 15, 1973 for the casing and tubing needs for Stage 2. The Committee was successful in obtaining the complete supply and satisfactory delivery schedules were

arranged. The other major service and material suppliers for this 50 well program were selected on the basis of competitive tenders. Awards were made on the basis of the lowest acceptable bid for each type of service and material. Those awarded contracts in Stage 2 are shown in Table II.

As with Stage 1, Farries Engineering Ltd, Reimer Engineering Ltd, Core Laboratories - Canada Ltd and Chemical and Geological Laboratories Ltd were retained to provide field supervisory and analytical services.

Drilling commenced on October 16, 1973 with two rigs starting on the six remaining wells in the southern portion of the Block. Tank maneuvers for the year in the northern area ceased on October 26th and on the following day two additional rigs joined the program. On December 1, 1973 one of the rigs was released leaving three to complete the drilling program in Stage 2.

Of the 50 wells in the Stage 2 program 35 were drilled by the end of 1973. These comprised fourteen Medicine Hat tests, nine Second White Specks tests, five Bow Island tests, four Basal Colorado tests and three Mississippian tests.

The Stage 2 program has been troubled with access problems. The trails in the northern portion of the Block cross terrain

of considerable relief. The combination of the changing relief with greater than average snowfall has required extensive snow plowing and road clearing. This has resulted in additional expense and some loss in time.

To minimize water hauling costs for Stage 2, a well was drilled in L.S. 14-28-19-7 W4 Mer. but it failed to produce water in satisfactory quantities. A well was then drilled five miles to the south in L.S. 16-32-18-7 W4 Mer. This well encountered water which is being used for cementing and fracturing.

Completion of the Stage 2 wells began on November 15, 1973. The 35 wells drilled by the year end are programmed for completion as

14 Milk River - Medicine Hat dual zone

20 Milk River - Second White Specks dual zone

1 Bow Island single zone.

Information relating to the Stage 2 wells appears in Table IV.

ACKNOWLEDGEMENT

The Committee acknowledges the assistance and co-operation of the Canadian Forces Base and the Defence Research Establishment at Suffield. The establishment of the check-in point at our field office and storage facility, complete with radio

communication equipment supplied by them has provided an efficient and reliable method of maintaining continuous communication between all parties working in the Suffield Block.

REMAINING PORTION OF THE PROGRAM

Of the 15 wells remaining to be drilled 11 are planned to test the shallower formations and four are planned to test the deeper formations. If weather conditions are favourable drilling of these wells should be finished by February 15, 1974.

The perforating and fracturing program for the Stage 2 wells was delayed because of an inadequate supply of fracturing sand last fall. Sand seems now to be in reasonable supply and this phase of Stage 2 is expected to be completed in early April. As the wells are perforated and fractured they become available for flow testing and this operation should be completed by the middle of May.

Upon completion of the drilling program and evaluation of the well data the Committee will prepare its final report relating to the evaluation of the gas resources of the Suffield Block. It is expected that the final report will be presented to the Minister of Mines and Minerals about the end of June.

TABLE I
SUFFIELD EVALUATION PROGRAM
CONTRACTS AWARDED FOR STAGE 1

<u>CONTRACT</u>	<u>AWARDED TO</u>
Surveying	Hogg, Munro & Associates Ltd.
Drilling	Whitco Drilling Ltd.
Casing	Homco International Ltd.
Tubing	Franklin Pipe & Supply Ltd.
Coring	Christensen Diamond Products (Canada) Ltd.
Logging	Schlumberger of Canada Ltd.
Floating Equipment	Top-co Industries Ltd.
Cementing	Dowell of Canada Ltd
Wellsite Services	Joyline Transport Ltd.
Wellhead Cellars	Stoy Concrete Pipe Ltd.
Perforating	Halliburton Services Ltd.
Fracturing	Halliburton Services Ltd.
Service Rig	Rockwell Servicing Ltd.
Packers	Site Oil Tools Ltd
Wellheads	Continental-Emsco Company Ltd.
Testing	Tharin Petroleum Data Ltd.

TABLE II

SUFFIELD EVALUATION PROGRAM

CONTRACTS AWARDED FOR STAGE 2

<u>CONTRACTS</u>	<u>AWARDED TO</u>
Surveying	J.H. Hogg and Associates Ltd.
Drilling	
35 shallow wells --	Whitco Drilling Ltd.
15 deeper wells --	Kenting Petrolia Drilling Ltd.
Casing and Tubing	Dominion Oilfields Supply Co.Ltd.
Coring	Foothills Diamond Coring Ltd.
Logging	Schlumberger of Canada Ltd.
Drillstem Testing	Johnston Testers Ltd.
Centralizers	Northwest Tool Ltd.
Casing Equipment	Import Tool Company Ltd.
Cementing	Halliburton Services Ltd
Wellsite Services	Oil & Gas Techno Service Ltd.
Wellhead Cellars	Consolidated Concrete Ltd
Perforating	Canadian Perforators Ltd.
Fracturing	Dowell of Canada Ltd.
Service Rig	Brooks Field Service Ltd.
Packers	Otis Pressure Control, Inc.
Wellheads	Continental-Emsco Company Ltd.
Testing	Burroughs Engineering Ltd.

TABLE III
SUFFIELD EVALUATION PROGRAM
STAGE 1 WELLS
AT
DECEMBER 31, 1973

Well Location	Spud Date	Total Depth	4½" Casing Depth	Formation Tops			Perforated Intervals			Status
				Milk River	Med. Hat	Second White Specks	Milk River	Med. Hat	Second White Specks	
10-17-19-3	7- 8-73	1547	1547	985	1432	-	1156- 1290	1436- 1446	-	Gas well
6- 6-20-3	15- 8-73	1470	1470	868	1320	-	1042- 1127	1322- 1330	-	Gas well
6- 8-17-4	1- 9-73	1582	1582	978	1408	2058	1143- 1237	1411- 1514	-	Gas well
6-28-18-4	5- 8-73	1491	1491	898	1350	-	1067- 1149	1352- 1358	-	Gas well
6-16-19-4	10- 8-73	1486	1486	804	1265	-	981- 1063	1266- 1274	-	Gas well
6-32-16-5	3- 8-73	1517	1517	920	1335	-	1139- 1211	1339- 1349	-	Gas well
6- 1-15-6	18- 8-73	1388	1388	798	1175	-	912- 1053	1210- 1292	-	Gas well
6- 4-15-6	21- 8-73	1526	1524	905	1310	-	993- 1159	1314- 1420	-	Gas well
7-14-15-6	14- 8-73	1390	1390	785	1175	-	785- 1009	1180- 1284	-	Gas well
6-17-15-6	25- 7-73	1453	1453	890	1285	-	979- 1140	1285- 1324	-	Gas well
6- 1-16-6	31- 7-73	1416	1416	815	1230	-	956- 1036	1232- 1338	-	Gas well
6- 7-16-6	28- 7-73	1419	1419	855	1255	-	1077- 1103	1256- 1288	-	Gas well
6- 1-15-7	22- 8-73	1420	1420	845	1255	-	930- 1097	1280- 1365	-	Gas well
6- 5-15-7	25- 8-73	1448	1446	848	1248	-	895- 1129	-	-	Gas well
6-15-15-7	19- 7-73	1325	1324	795	1188	-	865- 922	1195- 1234	-	Gas well
6-17-15-7	1- 9-73	1909	1909	790	1192	1798	859- 999	-	1798- 1806	Gas well
6- 3-15-8	29- 8-73	1722	1722	765	1162	-	851- 1025	1198- 1510	-	Gas well
6-13-15-8	13- 7-73	1370	1370	782	1180	-	853- 1047	1200- 1242	-	Gas well
6-17-15-8	11- 7-73	1380	1380	780	1178	-	859- 1042	1201- 1207 1216- 1232	-	Gas well
6- 1-16-8	16- 7-73	1610	1610	1025	1428	-	1233- 1275	1431- 1472	-	Gas well
6- 9-16-8	27- 8-73	2213	2213	1030	1450	2060	1191- 1311	-	2060- 2069	Gas well
6-33-16-8	18- 8-73	1725	1725	1128	1545	-	1132- 1303	1555- 1579	-	Gas well
6-12-15-9	5- 9-73	2065	2065	850	1290	1872	923- 1127	-	1894- 1904	Gas well
6-26-15-9	9- 7-73	1530	1530	948	1362	-	1090- 1215	1366- 1373 1388- 1400	-	Gas well
11-11-16-9	22- 8-73	2160	2160	998	1408	2028	1012- 1265	-	2035- 2045	Gas well
6-27-16-9	1- 8-73	2150	2150	1010	1422	1995	1087- 1422	-	2047- 2052	Gas well
6-35-17-9	29- 7-73	1638	1638	1072	1508		1235- 1275	-	-	Gas well

All depths are measured in feet from the rig Kelly Bushing.

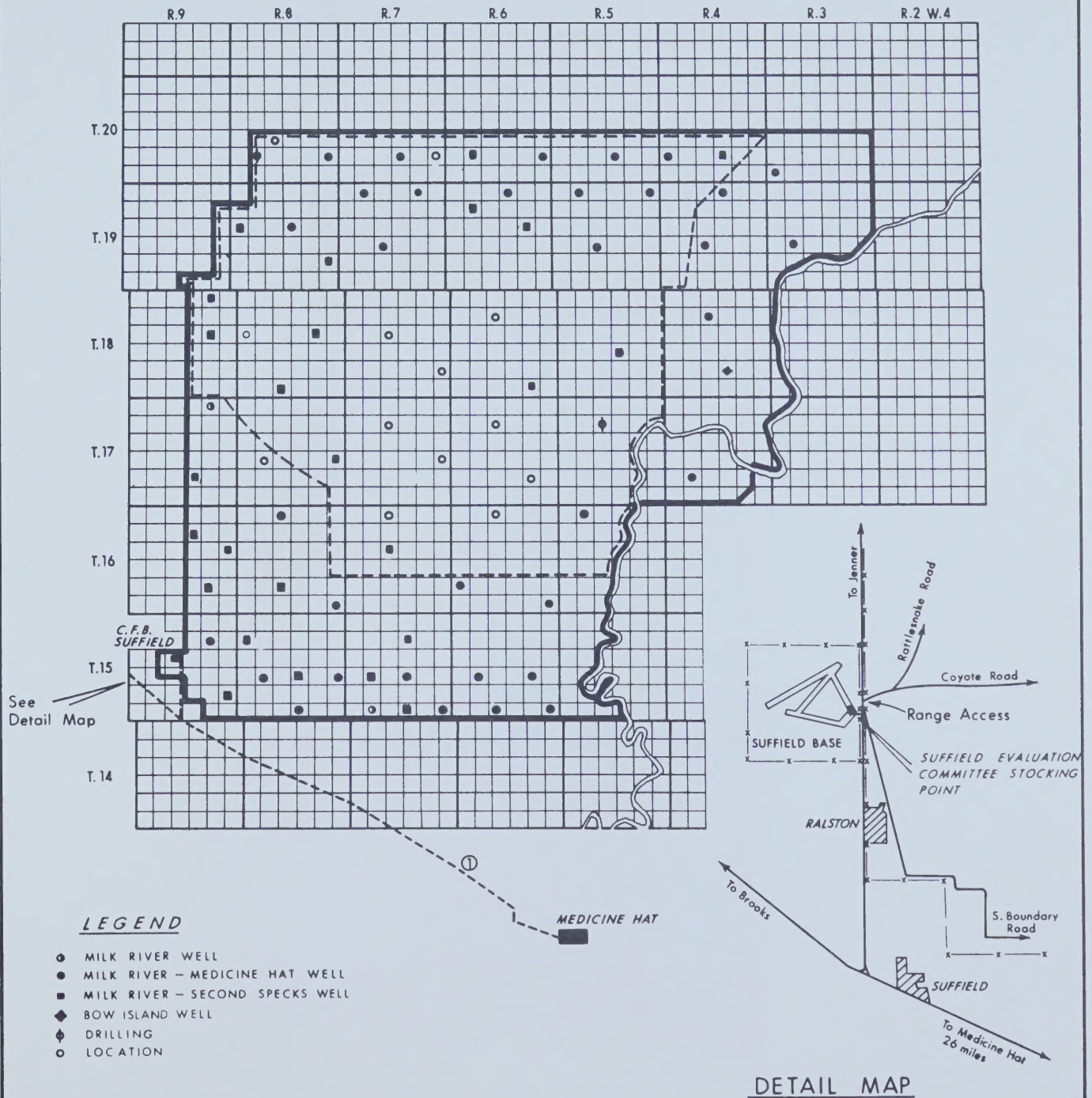
TABLE IV
SUFFIELD EVALUATION PROGRAM
STAGE 2 WELLS
AT
DECEMBER 31, 1973

Well Location	Spud Date	Total Depth	4½" Casing Depth	Formation Tops			Deep Tests	Perforated Intervals				Status
				Milk River	Med. Hat	Second White Specks		Milk River	Med. Hat	Second White Specks	Bow Island	
6-10-18-4	11-12-73	3152	2371	1012	1455	1945	Bow Isl. 2318 Miss.2990				2319-2324	Gas well
6-34-19-4	31-10-73	1429	1429	808	1266							Waiting on completion
6- 7-20-4	5-11-73	1670	1667	1079	1534							Waiting on completion
6-10-20-4	9-11-73	2340	1887	830	1208	1778	Bow Isl. 2178					Waiting on completion
6-28-17-5	20-12-73											Drilling
6-15-18-5	10-12-73	2020	2017	795	995	1745						Waiting on completion
6-16-19-5	8-12-73	1720	1720	1110	1575							Waiting on completion
6-32-19-5	5-12-73	1789	1789	1206	1670							Waiting on completion
6-36-19-5	14-11-73	1687	1687	1040	1495							Waiting on completion
6-10-20-5	19-11-73	1690	1668	1066	1528							Waiting on completion
6-33-16-6												Location
6-11-17-6												Location
6-28-17-6												Location
6- 2-18-6	1-11-73	2573	2134	1006	1444	1982	Bow Isl. 2379	1162-1308		1984-2006		Gas well
6-28-18-6												Location
6-23-19-6	21-11-73	2671	2303	1195	1640	2168	Bow Isl. 2584					Waiting on completion
6-29-19-6	5-12-73	3563	2450	1402	1838	2324	Miss.3522					Waiting on completion
6-34-19-6	30-11-73	1801	1791	1260	1714							Waiting on completion
6- 8-20-6	27-11-73	3134	2296	1288	1724	2262	Bsl.Col. 2986					Waiting on completion
6-12-20-6	24-11-73	1854	1854	1288	1728							Waiting on completion
6- 3-15-7	16-10-73	1985	1985	864	1253	1846		924-1123		1847-1857		Gas well
6-27-15-7	27-10-73	2310	1875	783	1190	1775	Bow Isl. 2152	853-1039		1778-1797		Gas well
11-21-16-7	29-10-73	3622	2273	1072	1492	2069	Miss.3558	1167-1348		2083-2101		Gas well
6-33-16-7												Location
6-13-17-7												Location
6-28-17-7												Location
6-12-18-7												Location
6-21-18-7												Location
6-16-19-7	13-11-73	1889	1879	1230	1664							Waiting on completion
6-32-19-7	19-11-73	1758	1750	1207	1638							Waiting on completion
6-35-19-7	8-11-73	1646	1643	1085	1508							Waiting on completion
6-10-20-7	29-10-73	1588	1583	1078	1502							Waiting on completion
6-12-20-7												Location
7-15-15-8	20-10-73	1930	1930	792	1214	1800		858-1038		1800-1809		Gas well
6-30-15-8	23-10-73	2070	2062	914	1335	1932		968-1148		1935-1944		Gas well
6-13-17-8	17-12-73	2340	2313	1100	1505	2080						Waiting on completion
6-17-17-8												Location
6- 4-18-8	13-12-73	2326	2317	1090	1505	2088						Waiting on completion
6-19-18-8												Location
6-23-18-8	6-12-73	2345	2345	1130	1554	2133						Waiting on completion
6-12-19-8	15-11-73	2941	2197	1113	1533	2105	Bsl.Col. 2833					Waiting on completion
6-19-19-8	26-11-73	2360	2346	1152	1565	2165						Waiting on completion
6-22-19-8	23-11-73	1663	1663	1114	1546							Waiting on completion
6- 8-20-8	17-12-73						Miss.3224					Drilling
6-12-20-8	1-11-73	1665	1650	1080	1505							Waiting on completion
11-16-20-8												Location
6-24-16-9	21-10-73	2555	2054	952	1370	1988	Bow Isl. 2400	1035-1194		1990-1999		Gas well
6-10-17-9	16-10-73	2900	2122	992	1415	2040	Bsl.Col. 2779	1083-1270		2025-2049		Gas well
6-23-18-9	2-12-73	2290	2286	1075	1505	2085						Waiting on completion
6-35-18-9	22-11-73	3026	2238	1138	1520	2158	Bsl.Col. 2890					Waiting on completion

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